Working Document on

Health and Family Planning Indicators: A Tool for Results Frameworks

Health and Human Resources Analysis for Africa (HHRAA) Project
Office of Sustainable Development
Bureau for Africa
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Table of Contents

Table of Contents
(continued)

Table of Contents
(continued)

I. Introduction

Within USAID, the Africa Bureau was the first to initiate periodic performance and impact monitoring, which originally took place in the form of annual Assessments of Program Impact (APIs). Under re-engineering, the API has been transformed into the "results review" (known as the "R2" or "R2a"), a document presenting an operating unit's logical results framework along with detailed specification and monitoring of program performance indicators. The R2 in turn forms part of the "results review and resource request" (R4), which links the unit's logical framework and performance monitoring data with its specification of program needs.

The experience in performance and impact monitoring to date merits periodic review so that the Africa Bureau, missions, and our colleagues throughout the Agency can learn from our innovative approaches as well as from our mistakes. While some basic performance indicators may already enjoy broad acceptance and be widely understood within the Agency, new paradigms of sustainable development and related programmatic shifts, such as the move from vertical programs to systems strengthening within child survival programs, call for new types of indicators which are still being established and refined.

This document focuses on R2 indicators used by units in the Africa region for activities in the family planning and health sector. Drawing from the technical review of APIs and R2s through FY 1995 (as well as a few new Results Frameworks submitted by missions since the R2 review process of May-June 1996), this document sets out to achieve several objectives: to provide an introduction to the type of programmatic hierarchy suggested by Africa results frameworks, to present and define key indicators of progress toward results within this hierarchy, and to offer guidance on difficulties in the collection and interpretation of data for these indicators. The Bureau welcomes and encourages feedback from the missions regarding the material presented here and any other issues related to performance monitoring in the family planning and health sector.

II. The Results Framework and Performance Monitoring

A. The Results Framework

The *Results Framework* (RF) consists of the strategic objective, supporting intermediate results, and key performance indicators for which an operating unit is willing to be held accountable. The RF is dynamic and subject to change by an operating unit based on its experience. This flexibility facilitates refinements in the intermediate results and activities over the life of the strategic objective. The results framework structure depicts the anticipated causal relationships from activities to intermediate results, from intermediate results to the strategic objectives, and, ultimately, from the strategic objective to the achievement of a broad program goal.

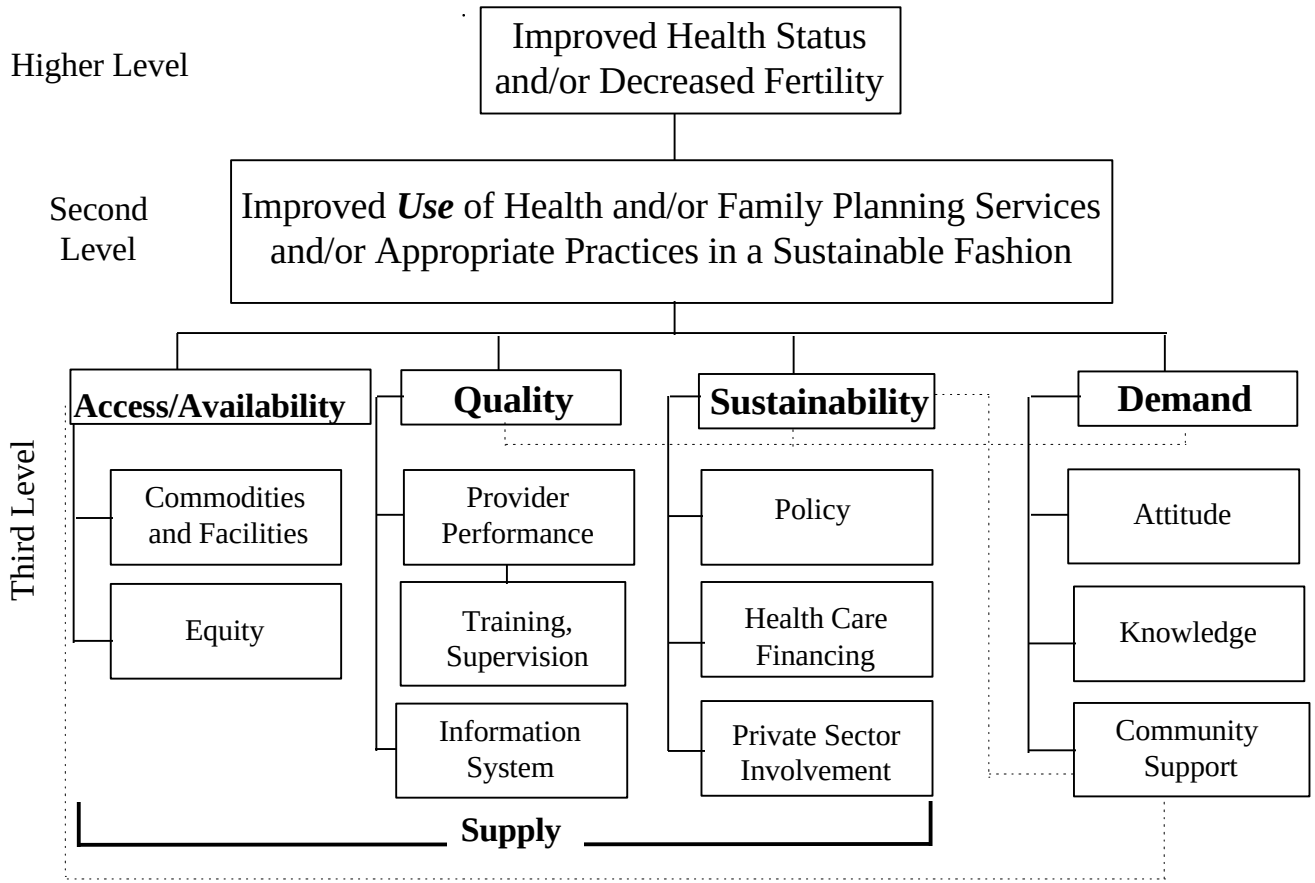
The *Strategic Objective* (SO) is the highest level result an operating unit can materially affect with its efforts/resources and for which it is willing to be held accountable. The SO should be: 1) clear, precise, and objectively measurable; 2) unidimensional, where possible; 3) linked to Agency objectives and goal.

Intermediate Results (IRs) are those key lower level results which must occur in order for the SO to be achieved. The SO is not a summation of the intermediate results-- rather a **different level** of result. In other words, there is a **causal relationship** between the IRs and SO and their relationship is direct and clear. IRs should include both key-partner and USAID-funded results.

Figure 1 on the following page provides one model of how such a hierarchy of results may be conceptualized for the family planning and health sector. The various levels in this model are **not** identified as "SO-" or "IR-level" because it is for the operating units to interpret what lies within their own manageable interest. For example, one mission may believe that it can affect fertility while another may feel that only a change in contraceptive prevalence or access is within its manageable interest. While the level chosen for the SO may differ, the hierarchy of results will remain much the same.

The model presented in Figure 1 is based on a basic supply-demand framework, wherein access/availability, quality and sustainability all are components of supply. Depending on the program, the supply side could be framed differently, for example, the program may focus mainly on improving access/availability and quality. However, it is important that all these components be considered at the time the results framework is being developed. Other partners may be addressing certain of the elements that USAID is not addressing.

Figure 1. Health and Family Planning Results Framework Model



Depending on the specific program, some elements of the third level in Figure 1 could be arranged differently. For example, training, supervision or information systems may be more critical to sustainability than to quality or community support may relate more to sustainability than to demand.

An advantage to the results framework approach to strategic planning and performance monitoring is the flexibility afforded for sequencing of results over time (not shown in Figure 1) within the overall strategic planning time frame (5-7 years). This is a conceptual nuance which was more difficult to convey under the older, agency-wide practice of elaborating objective trees to illustrate a program's logical framework. The results framework also may include intermediate results for which responsibility lies with other development partners, such as host country governments or other donors.

Figure 2. Illustrative Health and Family Planning Performance Monitoring Indicators Matrix

Program	*Higher Level.* Health Status/Impact	*Second Level.* Use / Behavior	*Third Level.* Access/ Availability	Quality	Sustainability	Demand
Family Planning	• total fertility rate	• contraceptive prevalence • couple-years of protection (proxy)	• adult population with access to contraceptives • contraceptive availability (per capita) • supply of contraceptives • service delivery points	• systems strengthening (training, supervision, management, logistics, stockouts) • Service delivery according to protocols	• public resource allocation for FP • deregulation of FP activities • mobilization of private sector • contraceptive social marketing • supportive FP policies in place	• mean desired family size • desire to limit or space births • knowledge of methods, location
Child Survival	• infant and under-5 mortality rates • adequate nutritional status	• immunization coverage • use of malaria/ ARI case management services • ORT use rate • exclusive breastfeeding • complementary feeding	• population living near specified services (case management, immunization, etc.) • access to safe water, adequate sanitation • service delivery points - ORS supply • supply of essential drugs • adequate facility resources	• integrated management of childhood illnesses • quality of immunization services • malaria diagnosis and treatment • systems strengthening (training, supervision, HIS, logistics, stockouts)	• public resource allocation ($-> health, PHC, rural care, etc.; % of drugs to non-hospital facilities) • cost recovery: % of total, % retained locally, % for PHC • mobilization of private sector	• knowledge of location of services • knowledge of ORT • communities with health committees • community-based programs supporting PHC
Maternal Health	• maternal mortality ratio	• prenatal consultation • births attended by trained personnel	• availability of and access to emergency obstetric care • referral systems in place	• met need for emergency obstetric care • women admitted with obstetric complications treated within two hours	• safe pregnancy plans developed and implemented	• knowledge of emergency obstetric care • knowledge of maternal complications

Program	*Higher Level.* **Health Status/Impact**	*Second Level.* **Use / Behavior**	*Third Level.* **Access/ Availability**	**Quality**	**Sustainability**	**Demand**
HIV/AIDS/ STIs	• HIV seroprevalence • STI incidence or prevalence	• condom use • multiple or non-regular partners • safer sex composite • treatment of STIs	• service delivery points • access to counseling and testing • STI drugs • access to condoms • availability of condoms (per capita) • condom supply (particularly at high-risk locations)	• STI case management (diagnosis, treatment, counseling, partner notification) • training	• public resource allocation • HIV/AIDS prevention plans developed and implemented • mobilization of private sector • condom social marketing	knowledge of: • risk • safe practices

B. Performance Monitoring

Performance monitoring is the on-going process of collecting and analyzing data to measure program performance. Performance monitoring focuses on the achievement of expected results. It involves the analysis of how changes in specific performance indicators compare with those expected and specified in performance targets. Performance monitoring alerts managers to problems or successes, for example, when targets are either not being met, reached or exceeded.

Performance monitoring relies on the identification of indicators at each level of the results framework hierarchy that can demonstrate movement towards the desired results. There is an implicit hierarchy among the indicators that parallels the cause and effect hierarchy of the results framework. For example, in the domain of family planning programs, there are causal relationships between knowledge of family planning options, demand for family planning services, the contraceptive prevalence rate and, ultimately, the total fertility rate. In theory, higher-level indicators (corresponding to the higher levels of the results framework) change in response to changes in the indicators at the next level down which, in turn, change in response to changes in those at the lower levels.

Indicators that are commonly used to monitor performance in the family planning and health sector are outlined in Figure 2[1], presented in the context of programs in family planning, child survival, maternal health, and prevention of HIV and other sexually-transmitted infections (STI). More detailed discussion of these indicators appears in sections III-VI of this document.

C. Selection of Indicators

When choosing or formulating indicators for performance monitoring, missions and regional programs are urged to make sure that the chosen indicators are, to the greatest extent possible:

- ✓ Valid (the indicator measures the phenomenon it is intended to measure)
- ✓ Operational (measurable with developed and tested definitions and standards)
- ✓ Sensitive (changes in the indicator reflect changes in the phenomenon)
- ✓ Reliable (produces the same results when used to measure the same phenomenon)
- ✓ Unidimensional (measures only one phenomenon)
- ✓ Objective (understandable by a wide audience and not open to interpretation).

Other important concerns when considering indicators are the: *availability of data of sufficiently high quality, the affordability of data collection*, and *the generalizability of data to reflect results*

[1] Please note that the Child Survival Indicators Working Group is in the process of recommending common indicators for child survival. These indicators will be forwarded to missions when available.

occurring among the entire target population.

It should be noted that the definitions of the higher-level indicators – typically measuring health status or fertility – are generally well-established within the family planning and health community. Many of these may be selected by the Agency to serve as "common indicators" to report on overall Agency progress. Definitions at the second level – typically monitoring use of services – are frequently well-established as well. However, lower-level indicators, which tend to focus on the supply and demand of health and family planning services, are often more program-specific and may best be defined according to the special priorities and working conditions of a given mission's program.

Where possible, to promote consistency in reporting over time and consistency across missions, the Bureau urges missions to choose indicators as defined in this document, especially for higher- and second-level indicators. This will facilitate a more clear understanding of program reporting and allow the Bureau to attempt to draw conclusions on progress across the region. It is important to realize that minor deviations in indicator definitions, such as the age of the target population, can make comparison or aggregation impossible.

Missions are reminded that it is not necessary to report on every indicator on an annual basis. Missions are expected to choose reporting intervals consistent with what experience dictates are reasonable periods for measuring significant change. *However, re-engineering directives state that data for at least one performance indicator should be collected annually for each strategic objective or special objective.*[2] Likewise, missions need not report national-level data if their programs are narrowly focussed in specific regions where sub-national data are available.

[2] See Automated Directives Systems chapter on Monitoring and Evaluation, chapter 203, E203.5.5[1]).

III. A Hierarchy of Indicators

A hierarchy of family planning and health indicators for R2 reporting could be constructed as follows (also see figure 2 above). More detailed discussion of specific indicators appears in sections IV-VI.

Higher-level Indicators. These indicators of health status and fertility reflect the explicit reasons for undertaking family planning, child survival, and HIV/AIDS programs. Although cases exist where marked change in the indicator values have been observed in time periods as short as five years, more often than not a longer time period is required to effect and measure substantial change. In most cases, these indicators are most appropriate to monitor progress at the goal or sub-goal (or sometimes strategic objective) level of a country strategy.

a. Total fertility rate (TFR)
b. Infant mortality rate (IMR)
c. Under-five mortality rate (U5MR)
d. Maternal mortality ratio (MMR)
e. HIV/STI prevalence or incidence
f. Nutritional status

Second-level Indicators. These indicators track people-level impact in terms of use of services and/or safer behavior. They are frequently used to monitor program impact at the strategic objective level but may also serve at the intermediate result level. The logic of the results framework implies that progress on each of these indicators will contribute to the higher-level results of improved health status and decreased fertility.

- ***Service utilization indicators***

a. Contraceptive prevalence
   i. Contraceptive prevalence rate (CPR)
   ii. Couple-years of protection (CYP)
b. Oral rehydration therapy (ORT) use rate
c. Use of childhood immunization services
   i. Individual antigens (BCG, DPT3, Measles, Polio3)
   ii. Complete immunization
d. Treatment of acute respiratory infections (ARI)
e. Early consultation for febrile children
d. Prenatal care
   i. Neonatal tetanus immunization (TT2+)
   ii. Consultation during pregnancy
e. Births attended by medical personnel
f. Treatment of STIs among men

- ***Behavior indicators***

a. Infant feeding practices:
   i. Exclusive breastfeeding (up to six months)
   ii. Complementary feeding (at six to nine months)
b. Low-risk sexual behavior:
   i. Reported non-regular sexual partners
   ii. Reported condom use with non-regular sexual partner
   iii. Safer-sex composite indicator

Third-level Indicators. These indicators monitor progress on the supply of family planning and health services and the generation of demand for these services. While general aggregates following accepted reporting conventions are most desirable from a region-wide perspective, these indicators can also be tailored to more closely reflect individual program emphases. They are usually reported at the intermediate result level and can be grouped in the following general categories (with a few examples for each grouping):

- *Access to Services*

> **Access** is the ability to overcome barriers (social, economic, time, or distance) to the use of goods and services.
>
> - *Child Survival Indicators Working Group*

Access to goods and services concerns the ability of the population to overcome obstacles to obtaining desired goods and services. Where possible, programs may employ population-based indicators of access to services or commodities incorporating elements of time, distance, or economic means (for example, the percentage of the population within one hour's traveling time to a specified service, the percentage with access to safe water and adequate sanitation, etc.). Compared to estimates based on census and supply data, population-based indicators offer the most direct assessment of access.

> **Availability** is the level of supply of a particular service and/or commodity as measured with respect to the number of intended beneficiaries.
>
> - *Child Survival Indicators Working Group*

Access depends to a large extent on the *availability* of goods and services. The most basic indicators of access are thus raw tallies of services or commodities supplied to the population (for example, number of contraceptives distributed, number of service delivery points meeting certain criteria, supply of oral rehydration salts, etc.). Tallies are often the most practical indicators in terms of data collection but may be inadequate to indicate whether supply is increasing relative to the needs of targeted population groups. It is thus preferable to report the ratio of such tallies to the targeted population (e.g., condoms per adult of reproductive age) if the denominator, i.e. the targeted population, can be precisely defined and quantified.

> **Equity** is the degree to which interventions or desired outcomes are distributed according to demonstrable need among geographic areas and various population groups (for example, rural and urban, gender groups, etc.).
>
> - *Child Survival Indicators Working Group*

Another key contributing element to access is the fair distribution of goods and services with respect to targeted population groups, or *equity*. In fact, equity is a broader, cross-cutting issue that can be measured through comparisons of differential health outcomes and behavior as well as different degrees of access and availability for various population groups. However, because the critical differences accounting for lack of equity tend to occur at the level of access and availability, the most basic performance indicators of equity would be found here as well.

- *Quality of Services*

> **Quality** of family planning and health care services refers to their delivery according to accepted protocols or standards. The elements of the health care system examined to monitor quality are (1) provider performance and (2) support systems (training, supervision, logistics, information systems).
>
> *- Child Survival Indicators Working Group*

Also related to supply of services are facility-based and system-wide indicators of the quality of family planning and health interventions and systems. These may assess *provider performanc*e (correct case management, missed opportunities for immunization, effectiveness of IEC, etc.) or the desired results of *systems strengthening* activities (indicators on training, supervision, management of drugs and other commodities, health information systems). Elements of service quality are also commonly incorporated as criteria in indicators of access or supply (e.g., percentage of population within one hour's traveling time to a facility with trained personnel, number of facilities receiving regular visits from a supervisor).

- *Sustainability*

> **Sustainability** is the ability of host country entities (community, public and/or private) to assume responsibility for programs and/or outcomes without adversely affecting the ability to maintain or continue program objectives or outcomes.
>
> *- Child Survival Indicators Working Group.*

Like equity, sustainability is a broad, cross-cutting issue which actually can be applied to all levels of a results framework. Here, the label "sustainability" is intended to refer to the establishment of sustainable family planning and health programs and services, as measured through developments in public policy-making and the generation of resources and other support for family planning and health activities. In the past, this area has been referred to as the "enabling environment." Commonly-used indicators of sustainability monitor public resource allocation, the mobilization of private sector, levels of cost recovery, and trends in broader community participation. In USAID program context, most indicators dealing with decentralization processes should ultimately be examining the degree to which local programs are (becoming) sustainable.

- *Demand*

Here we consider indicators specifically designed to monitor demand independently of other variables. Demand may be measured in terms of knowledge, attitudes, or practices, but the clearest indicators of demand are generally those dealing with attitudes. Knowledge of a service or behavior is a necessary but insufficient prerequisite to demand; only in some cases can demand, the desire to use the given service or behavior, be inferred from knowledge of it. Data on practices (i.e., service use and other health-related behavior), on the other hand, may provide an indication of "effective" demand, but fail to capture the amount of demand which remains unmet, typically due to access or quality problems. Where poor access or service quality do not fully account for the gap between knowledge and use, information on the population's attitudes toward particular results or interventions may help indicate the role played by insufficient demand.

Demand is the desire for a particular outcome, service, or commodity, or for practicing a particular behavior.

Demand indicators can target various levels of the strategic framework. For example, measuring "mean desired family size" assesses people's desire for reduced fertility. Addressing a slightly lower level in the framework, indicators of desire to use family planning or disease prevention practices illustrate demand for those specific services or behaviors. In all cases, however, the generation of demand is an intermediate step toward higher-level results and is not an end in and of itself.[3] Other indicators reflecting demand, including levels of cost recovery and other community participation, are considered under "sustainability."

[3] For more detailed discussion of the nature and role of demand indicators, see endnote #1.

IV. Higher-level Indicators

This section presents recommended indicators of health or fertility status, each with definition, discussion, suggested data sources, and a word about the general range of expectable change in values for the indicator.

A. Total Fertility Rate (TFR)

Definition: An estimate of the number of children that would be born per woman if she were to pass through the childbearing years bearing children according to a current schedule of age-specific fertility rates *(Handbook Of Indicators For Family Planning Program Evaluation).*

Unit: Children per woman.

Data Source: Demographic and Health Surveys (DHSs) are the best source.

Setting Targets: The ideal TFR value is 2.2 children, at which point population growth in developing nations would be stabilized. This is of course far from reality in Africa. In the past ten years, TFR has declined from about 6.5-7.0 in 1984 to just over 6.0 in east and west Africa and under 5.5 in southern Africa.

Discussion: While most higher-level indicators belong at the goal or sub-goal level, many missions place TFR at the strategic objective level as it is a fairly direct and reliable indicator of the success of family planning programs. In developing countries, calculations of TFR usually result from survey data and do not refer to a single year but to a group of several years. DHS estimates are usually for three-year periods. That is, when DHS reports a TFR as determined from a survey done in, say, 1990, the rate reported would be the rate for the period 1988 through 1990. Most missions have become accustomed to attributing DHS findings to the year of the survey, which is actually the end-year of the period. In the case of TFR (as well as IMR and U5MR), an additional note should indicate the full time period reflected in the data.

B. Infant Mortality Rate (IMR)

Definition: the estimated number of deaths in infants (children under age one) in a given year per 1,000 live births in that same year *(Report to Congress on Child Survival).*

Unit: deaths per 1,000 live births

Data Source: The best source of direct estimates is the DHS. A number of organizations (United Nations Population Division, World Bank, U.S. Census Bureau) make indirect estimates of mortality using mathematical modeling supplemented by subjective evaluation of available empirical data. These indirect estimates are **not** appropriate for measuring program impact. They are typically generated in the form of a time series trend, not single estimates for individual points in time; when new empirical data become available in the form of a new survey, census, or report from a vital statistics registration system, the entire time series trend is reevaluated.

Setting Targets: Unlike TFR, IMR is not a very precise measure of program impact

because of the strong influence of other contributing factors such as economic conditions or food supply. Generally speaking, the higher a country's IMR, the more one can hope to reduce it. Of 25 sub-Saharan African DHSs published from 1986 to 1995, infant mortality averaged a decline of 13.4 deaths per 1,000 live births over the two most recent five-year periods. Seven DHSs indicated a decline of over 20, but two showed increases in IMR.

Discussion: In practice, the IMR is calculated for a specific time period. This period may be as short as a year but, more often, a longer period of three or even five years is used. In most surveys, including DHS, estimates are for five-year periods. As with TFR, missions may attribute data to the survey year as long as the full time period is indicated as well.

C. Under 5 Mortality Rate (U5MR)

Definition: the estimated number of deaths among children under age 5 in a given year per 1,000 live births in that same year *(Report to Congress on Child Survival).*

Unit: deaths per 1,000 live births

Data Source: DHS. The same discussion regarding direct and indirect methods in calculating IMR applies to U5MR as well. When indirect methods are applied, both IMR and U5MR are typically determined together. Therefore, if indirect estimates of mortality from a source such as the United Nations are used to monitor performance, there may be no need to use both under-five and infant mortality rates.

Setting Targets: As with IMR, one can generally hope for higher reductions in U5MR in high-mortality areas. Targets should be set with consideration for the size of the program and the types of interventions to be supported. Of 25 sub-Saharan DHSs published by 1995, under-five mortality averaged a decline of 21.8 deaths/1,000 live births over the two most recent five-year periods. Seven DHSs indicated declines of over 30 and three DHSs found declines of over 50. Three DHSs, however, showed slight increases in U5MR and one found U5MR to have risen by nearly 30 deaths/1,000 live births.

Discussion: Information on both IMR and U5MR is very useful because some child survival interventions are focused on reducing mortality and morbidity among infants while others have the highest impact during the second and third year of life. Where DHSs are cited directly, it is appropriate to consider both rates as indicative of underlying mortality patterns. *As with IMR, missions may attribute DHS findings on U5MR to the survey year as long as the full time period reflected in the data is indicated as well.*

A fair level of confusion exists between the terms "under five mortality" and "child mortality." Whereas U5MR refers to deaths by age five per thousand live births, child mortality refers to deaths by age five per thousand children who survived the first year of life (i.e., mortality among children ages one through four).

D. Maternal Mortality Ratio (MMR)

Definition: The estimated number of maternal deaths per 100,000 live births, where a maternal death is one which occurs when a woman is pregnant or within 42 days of termination of pregnancy from any cause related to or aggravated by the pregnancy or its management *(Report to Congress on Child Survival).*

Unit: maternal deaths per 100,000 live births

Data Source: The DHS is a good source, but only half of the DHSs conducted in Africa since 1990 have attempted to measure maternal mortality. MMRs can also be derived from vital registration systems (usually underestimated), community studies and surveys (requiring very large sample sizes) or hospital registration (usually overestimated).

Setting Targets: Because MMR has been so difficult to measure in the past, there is little data which convincingly quantifies reduction in MMR. In light of this, recommending amounts of change does not seem advisable. Where data are available on causes of maternal deaths, missions may choose to project change by subtracting from an established MMR some or all of the share attributed to a certain cause (or causes) to be addressed by reproductive health interventions.

Discussion: The value of this indicator is extremely difficult to determine and estimates for individual countries vary greatly. Exploration into survey methods (such as asking women about their sisters) is still ongoing. DHS estimates are for periods of at least five years (usually more) and should be attributed to the mid-point of the given time period. Although often referred to as a rate, MMR is actually a ratio because the unit of measurement of the numerator (maternal deaths) is not part of the denominator (live births).

E. HIV/STI Prevalence or Incidence.

i. HIV Seroprevalence

Definition: the proportion of a specified population whose blood tests positive for HIV.

Unit: percent

Data Source: U.S. Bureau of the Census HIV/AIDS Surveillance Database, National AIDS Control Programs, other local sources of test results.

Setting Targets: Setting a target for reducing HIV seroprevalence is a daunting task. USAID/Uganda has shown reductions in HIV seroprevalence at selected sites for several years, but these the ultimate significance of these results is difficult to determine. Some missions have chosen stable prevalence as their target. Another, USAID/Nigeria, skirted the problem in its R2 for FY 1994 by comparing the rate of change in HIV seroprevalence among targeted groups with that among non-targeted groups.

Discussion: USAID no longer recommends that countries use HIV seroprevalence rates as indicators of HIV/AIDS program impact, given (1) the length of time believed to be required to effect measurable change and (2) the diverse factors which determine seroprevalence which lie outside the purview

of preventive interventions. Seroprevalence at a given point in time not only directly reflects the rate at which the virus is spread but also responds inversely to the rate at which those infected perish from full-blown AIDS. Missions may wish to continue tracking HIV seroprevalence at selected focus sites to monitor for progress among targeted population groups, such as pregnant women at antenatal clinics or specified higher-risk groups.

USAID recommends that missions use HIV/AIDS priority prevention indicators, developed by the World Health Organization (WHO) and USAID, as a basis for developing or refining their R2 indicators. The priority prevention indicators measure key components of USAID's suggested strategies for reducing HIV/AIDS transmission: improved knowledge, condom use, lower-risk sexual behavior, and improved case management. (These measures are treated under second- and third-level indicators below.)

Two other morbidity measures for sexually-transmitted infections (STIs) have been recommended by WHO's Global Program on AIDS (WHO/GPA) and may serve as higher-level indicators for missions combating STIs:

ii. STI Incidence, Men

Definition: The number of reported episodes of urethritis in men aged 15-49 in the last 12 months divided by the number of men aged 15-49 surveyed.

iii. STI Prevalence, Women

Definition: An estimate of the proportion of pregnant women aged 15-24 with positive serology for syphilis among the population of pregnant women of that age attending antenatal clinics whose blood has been screened.

Unit: percent

Data Source: U.S. Bureau of the Census STD Database, local testing or survey results.

Setting Targets: Projecting reduction in STI prevalence or incidence is subject to many of the same difficulties outlined for HIV above. Projections would require careful analysis of the current STI situation and the possible efficacy of programmed interventions.

F. Adequate Nutritional Status

Definition: An individual child of a certain age is said to be adequately nourished if his/her weight is greater than the weight corresponding to "two Z-scores" (two standard deviations) below the median weight achieved by children of that age. The median weight and the distribution of weights around that median in a healthy population are taken from a standard established by the U.S. National Center for Health Statistics, endorsed by WHO. The indicator recommended to represent the population as a whole is the proportion of children 12 through 23 months of age who are adequately nourished *(Report to Congress on Child Survival)*.

Unit: percent

Discussion: Although weight-for-age (WFA) is the recommended USAID child survival indicator, missions in the Africa region may choose to consider other anthropometric

measures, particularly because age may be difficult to determine. An alternative, *wasting*, or acute malnutrition, is defined in terms of a child's weight with respect to height (weight-for-height). This indicator will respond dramatically to short-term phenomena, such as temporary disruption of food supply or a disease outbreak, and therefore is not necessarily a good indicator of long-term program performance.

Another indicator, *stunting*, or chronic malnutrition, is defined in terms of a child's height given his/her age (height-for-age). Missions may also consider age groups other than "12 to 23 months of age," but the trends for all children under 60 months of age are almost always identical to the trends for this more limited group.

The nutrition community generally refers to the complement of the accepted USAID indicator (i.e., the share of children who are malnourished, or "1 - the percentage adequately nourished") as the relevant indicator. Either way, WFA is generally accepted to be one of the best general indicators of the health status of a population. It is responsive to a number of factors, including the economy, food availability and the quality and quantity of health service provision. Generally, WFA is also the most commonly available nutrition indicator for national and international comparisons.

V. Second-Level Indicators

This section presents recommended second-level indicators, each with definition, unit of measurement, suggested data sources, and further discussion regarding collection and interpretation of data. These indicators track people-level impact in terms of use of services and safer behavior. In many cases (particularly contraceptive prevalence, immunization coverage, ORT use, safer sex indicators), these indicators are appropriate to measure progress at the strategic objective level.

A. Service Utilization Indicators

Only population-based data, typically detailing the proportion of survey respondents who used a given service, represent a true, direct measurement of service utilization. Facility- or commodity-based measures, such as raw tallies of consultations or products provided, or a proportional calculation of the number of users divided by the number of possible beneficiaries, may serve either as proxies for utilization or as lower-level indicators of service supply.

i. Contraceptive Prevalence

Two indicators are commonly used to track the use of family planning services. The first, the contraceptive prevalence rate (CPR), is the preferred indicator primarily because it is population-based measure of actual service use. Since CPR is derived from survey data, it is generally not available on an annual basis. The second indicator, couple-years of protection (CYP), is based on service statistics and may serve as a lower-quality proxy indicator to track progress only for those years when CPR is not available. CYP data should not be converted to a CPR and reported as such in the R2 without proper notation, and a CPR based on CYP should not be reported once concurrent or more recent survey-based CPR data are available.

a. Contraceptive Prevalence Rate (CPR)

Definition: An estimate of the proportion of women of reproductive age who are using (or whose partner is using) a contraceptive method at a particular point in time *(Handbook Of Indicators For Family Planning Program Evaluation)*.

Unit: percent

Data Source: DHS, other contraceptive prevalence surveys.

Setting Targets: Developing nations are far from the ideal "replacement level" of 65 percent. While USAID/Zimbabwe has reported an impressive CPR (modern methods) of 42 percent, most other sub-Saharan missions report CPRs well under 25 percent, with selected east African nations currently averaging under 12 percent and west African nations just over 7 percent. Generally, an annual increase of 1-2 percent indicates significant progress. Where family planning programs are established in countries with very low contraceptive prevalence, missions have been able to report doubling (or better) of the CPR in very short periods of time. For example:

- Ghana: 5.2% in 1988, 10.1% in 1993
- Kenya: 9.0% in 1984, 21.7% in 1994
- Tanzania: 5.9% in 1991, 11.5% in 1994
- Uganda: 2.5% in 1988, 9.4% in 1994

On the other hand, in countries where CPR is higher, changes may seem less dramatic:

- Swaziland: 17% in 1988, 22% in 1992
- Zimbabwe: 26.6% in 1984, 42.0% in 1994

(all data refer to modern methods)

Discussion: CPR is accepted as the "best" performance indicator for family planning program and is the single indicator most commonly tracked by missions in the Africa region. It is important for missions to specify which methods and population groups (marital status and age) it is tracking. The Africa Bureau recommends that a rate be reported for modern methods (defined in DHSs to include pills, IUD, injections, diaphragm, foam or jelly, condoms, and sterilization); in addition, missions may report CPR for all methods (including traditional). The Bureau also recommend that rates be reported for "all women", not just those in union, though sometimes data are available only for the latter group. If the indicator is to be monitored over time, it is important that the value be reported for the same marital status group and the same age group (usually woman ages 15-49, sometimes 15-44) in all time periods, and that the same definition of modern methods be applied.

b. Couple-Years of Protection (CYP)

Definition: An estimate of the protection against pregnancy provided by family planning services during a period of one year, based upon the volume of all contraceptives sold or distributed free of charge to clients during that year.

Unit: couple-years of protection

Data Source: CYPs are normally computed from service statistics or logistics management information systems.

Discussion: CYP may serve as a lower-quality proxy indicator to track progress only for those years when CPR is not available. Missions are cautioned not to convert CYP data to contraceptive prevalence rates. Please see endnote #2 if Mission plans to report on CYP.

The value of the indicator is calculated by multiplying the quantity of each method distributed to clients by a conversion factor, which yields an estimate of the duration of contraceptive protection provided per unit of that method. The CYPs for each method are then summed over all methods to obtain a total CYP figure.

Conversion factors currently in use in the USAID system are:

Oral Contraceptives	15 Cycles per CYP
CU"T"380-A IUDs	3.8 CYP per IUD inserted
Norplant implant	3.5 cycles per implant
Condoms	150 units per CYP
Vaginal Foaming Tablets	150 tablets per CYP
Sterilization	10 CYP per sterilization procedure
Depoprovera (injectable)	4 "doses" (1ml) per CYP
Noristerat (injectable)	6 "doses" per CYP
(monthly injectable)	12 doses cyclofem per CYP
Natural Family Planning	2 CYP per trained/ confirmed adopter
Lactational amenorrhea	4 active users per CYP

(Handbook Of Indicators For Family Planning Program Evaluation)

ii. Oral Rehydration Therapy (ORT) Use Rate

Definition: An estimate of the proportion of all cases of diarrhea in children under age five treated with oral rehydration salts (ORS) and/or a recommended home fluid (*Report to Congress on Child Survival*).

Unit: percent

Data Source: DHS, other population-based surveys.

Discussion: This indicator is an appropriate measure of program performance in countries where rehydration with recommended home fluids is an accepted part of the diarrheal disease control program. It is best estimated by surveying mothers whose children have had diarrhea within the last two weeks (experience suggests that recall beyond two weeks is poor). Since the numbers of children with diarrhea in any two-week period are small in most countries, the sample size required to generate a statistically valid estimate – the number of mothers to be interviewed in order to find enough cases – is quite large.

The definition provided above is more restrictive than a newer one adopted by WHO since 1991, which also includes increased fluids (of any kind). Proponents of this new definition feel that the more restrictive definition cited above inappropriately discounts the efficacy of household case management through increased fluids. The debate within the international public health community continues; WHO no longer publishes values using the older definition and data availability may thus be limited to DHSs or comparable surveys.

In countries which stress the use of pre-packaged ORS as the cornerstone of the diarrheal disease program, "ORS Use Rate" may be chosen as a measure of program performance. As with the ORT Use Rate, the survey methodology is the best method of estimating the rate; administrative estimates based on ORS packets distributed are also possible but are highly sensitive to estimates of diarrhea incidence. In general, the ORT Use Rate has been the preferred indicator to monitor USAID programs to control diarrheal disease.

iii. Use of Childhood Immunization Services

Definition: An estimate of the proportion of living children between the ages of 12 and 23 months who have been vaccinated before their first birthday (*Report to Congress on Child Survival*).

Unit: percent

Data Source: DHS, standard WHO or UNICEF cluster coverage surveys; administrative estimates (see discussion).

Discussion: Coverage rates can be tracked for each of the four commonly recommended vaccines (BCG, DPT, Measles, Polio) or for complete coverage with the four vaccines. Coverage for each of the individual antigens requires that the proper number of doses have been administered: three in the cases of polio

and DPT and once for both measles and BCG. Complete vaccination coverage before one year of age is the recommended indicator when data are collected from immunization coverage surveys, but administrative estimates based on routine service reporting do not normally yield this data. Complete vaccination coverage can be defined as an estimate of the proportion of children who have received each of the recommended childhood vaccinations before their first birthday. In the absence of data on complete coverage, the recommended indicator is coverage with DPT3 vaccine and/or coverage with measles vaccine before one year of age.

Administrative estimates are formed by dividing the number of doses of each antigen administered to children less than 12 months of age during a given time period (typically one year) by a mid-period estimate of the pool of children eligible for vaccination. Survey estimates calculate children vaccinated before their first birthday as a proportion of all children 12 to 23 months of age. The determination of which children were vaccinated may be limited to children with vaccination cards (as in the early DHS surveys) or, alternatively, may include children without vaccination cards whose mothers recall that their children had been vaccinated (as in the later DHS surveys). One may apply random sampling (as in DHS) or cluster sampling (as recommended by WHO).

Missions should try to be consistent in their choice of sources. Administrative estimates from routine data may differ greatly from estimates derived from a survey. It is

recommended that missions monitor and report on immunization coverage calculated from routine data and evaluate trends from these estimates. Estimates from surveys should also be reported when available, but missions should clearly note the source of data and should not attempt to directly compare figures from different types of sources.

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iv. Treatment of Acute Respiratory Infections (ARIs)

Definition: Percent of children under age five with cough and rapid or difficult breathing taken to a health facility.

Unit: percent

Data Source: DHS or other population-based survey.

Discussion: This indicator has been proposed by G/PHN to monitor performance of programs focussing on improved treatment of ARIs. Precise wording of the denominator may vary according to program focus or survey wording.

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v. Early Consultation for Febrile Children

Definition: Mothers of febrile children seeking treatment in health facilities who report that the fever began during the previous 24 hours divided by all mothers of febrile children seeking treatment in health facilities.

Unit: percent

Data Source: Observations and interviews in

health facilities.

Discussion: Reflecting a heightened emphasis on strengthening control and treatment of malaria, this is one of three malaria indicators specifically recommended to the missions by the Africa Bureau (others on service quality appear under section VI.B, indicator i.b). An alternative is the percentage of children with fever taken to a health facility (similar to indicator iv. above, available through DHSs) or otherwise given recommended treatment. USAID/Malawi, for example, is tracking the percent of children with fever receiving the first-line drug within 48 hours of the onset of fever.

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vi. Prenatal Care

a. Immunization Coverage among Women of Reproductive Age

Definition: An estimate of the proportion of women between the ages of 15 and 49 who have received at least two doses of tetanus toxoid (TT) during (or before) their pregnancies (*WHO/EPI)*.

Unit: percent

Data Source: DHS, standard WHO cluster coverage surveys, administrative estimates (see discussion under child immunization).

Discussion: Past reporting on this indicator has been restricted to women receiving two shots during their pregnancies (TT2). The revised indicator (TT2+) also includes women who have received the appropriate number of properly-spaced boosters in the years preceding the pregnancy in question. Five doses of TT, following the schedule outlined below, protect a woman from tetanus and all her newborns from neonatal tetanus during her childbearing years.

TT1: At first contact or as early as possible during pregnancy.
TT2: Four weeks after TT1, no later than 2 weeks before delivery.
TT3: Six months after TT2, or during next pregnancy.
TT4: One year after TT3, or during next pregnancy.
TT5: One year after TT4, or during next pregnancy.

(*WHO/EPI)*

b. Prenatal Consultation during Pregnancy

Definition: Percent of births whose mothers were attended at least once during pregnancy by medically-trained personnel for reasons related to pregnancy *(G/PHN)*.

Unit: percent

Data Source: DHS, other population-based surveys. Administrative estimates are also possible, but it is important to keep in mind that ongoing information systems typically report on the number of prenatal visits at a clinic in a specific time period, not the number of women seen in that time period.

Discussion: This indicator has been proposed as a performance indicator by G/PHN and variations of it were used in three R2s for FY 1995 (Mali, Niger, C.A.R.). It is important to specify a clear and consistent definition of "medically-trained," one that expressly identifies whether or not midwives or other country-specific categories of health worker (such as the MCH Aide in Tanzania) qualify as "medically trained." Definition of the service providers to be included may ultimately depend on areas of program

emphasis or availability of data.

vii. Births Attended by Trained Medical Personnel, as Percentage of Total Births

Definition: Percent of births attended by medically-trained personnel *(G/PHN)*.

Unit: percent

Data Source: DHS, other population-based surveys. This indicator is best calculated from a survey, since vital registration systems are lacking in most developing nations. Administrative estimates are also possible but are less reliable.

Discussion: This indicator has also been proposed as a performance indicator by G/PHN. It is important to specify a clear and consistent definition of "medically-trained." Both the G/PHN Action Plan and the Safe Pregnancy Indicators Subcommittee exclude traditional birth attendants (TBAs), trained or untrained. Programs promoting TBAs may choose to include them; in such a case it would be helpful to report two figures (with and without TBAs).

viii. Treatment of STIs Among Men

Definition: The percentage of men reporting STI symptoms in the previous 12 months who reported seeking treatment at a medical facility *(G/PHN)*.

Unit: percent

Data Source: DHS HIV/STI module, other surveys; administrative estimates.

Discussion: Where survey data are not available, this indicator could be defined as the number of STI consultations by men divided by the number of STIs among men. Reported values would thus rely on administrative tallies for the numerator and an estimation of total STIs for the denominator. G/PHN has used the definition provided above, suggesting DHS HIV/STI modules as the data source; G/PHN's results framework for HIV/STI prevention is under revision, however, a process which will likely bring about a revision of indicators.

B. Behavior Indicators

i. Infant Feeding Practices

a. Exclusive Breast-feeding

Definition: The percent of infants less than six months (0-182 days) of age who are being exclusively breastfed. An infant is considered to be exclusively breastfed if he/she receives only breastmilk with no other liquids or solids, with the exception of drops or syrups consisting of vitamins, mineral supplements, or medicine *(Wellstart).*

Unit: percent

Data Source: DHS, other population-based surveys.

Discussion: Given the recent emphasis on the protection of breast-feeding, this indicator is gaining in importance for performance monitoring. Although in the past WHO and USAID endorsed four months as the recommended period for monitoring exclusive breastfeeding, and data are generally more readily available using this period, both agencies have now adopted the six-month period.

It is recommended that surveyors use 24-hour recall data of all liquids and solids consumed by living infants 0-6 months of age. If retrospective data are collected to capture this information, the results are not directly comparable to 24-hour recall data. Survey data reflect breast-feeding practices among all infants under six months of age and do not indicate how many infants are still exclusively breast-fed at six months of age. Findings may thus be skewed depending on the age make-up of infants covered under the survey. An alternative method of measurement is to disaggregate by age at one-month intervals up to six months of age; this requires larger sample sizes *(Wellstart).*

b. Complementary Feeding

Definition: An estimate of the proportion of infants six to nine months of age (181 days to 299 days) still breast-feeding and also receiving complementary weaning foods *(WHO/CDD).*

Unit: percent

Data Source: DHS, other population-based surveys.

Discussion: A companion indicator to Exclusive Breast-feeding, the indicator of complementary feeding completes the picture of the weaning process. Both indicators are best measured through surveys where the current feeding practices for children in the appropriate age brackets can be ascertained.

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ii. Practice of Low-Risk Sexual Behavior

a. Reported Non-Regular Sex Partners

Definition: The number of people aged 15-49 who report having had at least one sex partner other than their regular sex partner(s) in the last 12 months divided by the total number of people aged 15-49 who report sexual intercourse in the last 12 months (*WHO/GPA*).

b. Reported Condom Use with Non-Regular Sex Partner

Definition: The number of people aged 15-49 reporting the use of a condom during the most recent act of sexual intercourse with a non-regular partner divided by the total number of people aged 15-49 who report sexual intercourse with a non-regular partner in the last 12 months (*WHO/GPA*).

c. Safer-Sex Composite

Definition: Proportion of the population age 15-49 reporting abstinence from sex over the previous 12 months **or** a single sex partner in the previous 12 months **or** consistent condom use with all sex partners in the last three months *(Reproductive Health Indicators Working Group/Subcommittee on STD/HIV)*.

Unit: percent

Data Source: #1-3: DHS HIV/STI module, AIDSCAP, other population-based surveys.

Discussion: These three indicators are relatively new and still open to debate and possible adjustment. The first two were recommended by WHO/GPA Survey and Protocol. The third is a composite indicator which will be tracked by G/PHN.

VI. Third-level Indicators

These indicators measure various inputs and outcomes related to supply, quality, demand, and sustainability of services. Missions are encouraged to specify precisely the service or services to be monitored in evaluating performance. This does not suggest that efforts should be limited to a vertical program but rather that outcomes must be specific in order to be measurable.

A. Access to Services

i. Population-Based Access Indicators

Indicators of "access" are typically defined in terms of the percent of the population living within a reasonable distance to a specified health service. "Reasonable distance" is defined locally and can be measured in terms of travel time (typically one hour by local means of travel) or geographic distance (typically 5 or 10 kilometers).

By adding qualifiers to the specified service, missions can measure access to services of a particular quality. For example, one may specify access to facilities with a sufficient supply of vaccines, drugs, commodities and/or equipment during a specified time period, or facilities with staff adequately trained to provide a specified service. These qualifying conditions require precise definition for valid performance monitoring.

In the absence of survey data, calculating access indicators requires the availability of good census data that are sufficiently disaggregated to the local level. Several examples of possible access indicators follow. Precise definitions for reasonable access and qualifying conditions are left open for missions to determine locally.

Access data should be disaggregated by gender groups and/or rural-urban locations to measure equity.

a. Access to Adequate Case Management Services

Definition: the proportion of the population that lives within a reasonable distance of a health facility that has a regular supply of drugs sufficient to treat all patients appropriately and staff adequately trained to provide proper treatment.

Unit: percent

Data Source: Local information systems, project-based reporting.

Discussion: For performance monitoring, this indicator requires precise definition of "a regular supply of drugs sufficient to treat all patients appropriately" as well as "adequately trained to provide proper treatment."

b. Access to Immunization Services

Definition: Percent of the population living within a reasonable distance of a health facility that routinely has vaccines available and that has staff who were trained or retrained to give immunizations in the last three years.

Unit: percent

Data Source: Local information systems, project-based reporting; surveys are a possibility if the definition is simplified.

Discussion: The Africa Bureau uses the coverage rate for DPT1 as a proxy indicator for access to immunization services and clinical child health services in general.

c. Access to Safe Water and/or Adequate Sanitation

Definitions:
Access to Safe Water: The percentage of the population with reasonable access to safe water supply, including treated surface water or untreated but uncontaminated water such as that from springs, sanitary wells, and protected boreholes.

Access to Adequate Sanitation: The percentage of the population with reasonable access to sanitary means of excreta and waste disposal, including outdoor latrines and composting.

Unit: percent

Data Source: Local information systems, DHS and other population-based surveys.

Discussion: Definitions vary greatly. The two provided above are the latest used by WHO. Some missions have cited WHO data but it is unclear whether such estimates are reliable for performance monitoring over time. Criteria can be determined locally for types of water supply or sanitation systems and "reasonable" access (usually a specified period of time).

d. Access to Contraceptives

Definition: Number of people who can acquire a contraceptive as a percentage of population aged 15-49.

Unit: number

Discussion: WHO/GPA and G/PHN recommend "access to condoms" as an indicator to monitor effectiveness of HIV/AIDS/STI prevention programs at the "peripheral level." Similar indicators may be designed for other contraceptive methods.

Data Source: DHS and other population-based surveys.

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ii. Availability of Supplies and Services

The most basic indicators of access are absolute tallies of service supply and the ratio of such tallies to a given population, typically referred to as *availability* (e.g., condoms per adult of reproductive age). These are very practical indicators as they can frequently be produced through routine reporting mechanisms. Gross tallies, and the calculation of availability per-capita, however, fail to specify whether targeted population groups really have access to services or commodities.

In the case of Couple-Years of Protection (CYP), which is discussed above under second-level indicators, tallies of diverse contraceptive supplies are aggregated together to provide an overall accounting of the possible impact of services supplied. The following list provides a few other examples

of basic supply and availability indicators used for performance monitoring:

a. Contraceptive Supply

Definition: Number of contraceptives distributed (free or for sale).

Unit: units of contraceptives

Data Source: Service statistics, logistics information systems.

Discussion: Data on the sale and/or distribution of contraceptives are good process indicators, though they do not necessarily show outcome or impact. Data on units sold through social marketing programs is discussed below under section IV, "Sustainability."

b. Condom Availability

Definition: The total number of condoms available for distribution during the preceding 12 months divided by the population aged 15-49.

Unit: condoms per adult of reproductive age

Data Source: Service statistics and census data.

Discussion: This is one of two "condom availability" indicators prescribed by WHO/GPA and endorsed by G/PHN (the other is the population-based measure of access to condoms, discussed under indicator (i.d.) above). Similar indicators may be designed to measure availability of other contraceptive methods.

c. Service Delivery Points (SDPs)

Definition: The number (or percentage) of points where a specified service is offered.

Unit: points or percent

Data Source: National or local health information systems. Data on private SDPs may be available from the Ministry of Health or from an association of private providers.

Discussion: Raw tallies of SDPs meeting certain criteria are very common indicators of program performance which in most cases can be fairly easily collected. The specification of SDPs can be refined to various levels in order to count services meeting a particular standard of quality (measuring these criteria, however, may add considerably to the burden of data collection). An example is from USAID/Ethiopia: "Increased percentage of rural health facilities providing satisfactory level of PHC services" (the mission lists five interventions as criteria for the satisfactory PHC package).

d. Service Delivery Points (SDPs) per Population

Definition: The number of points where a specified service is offered divided by the total or target population.

Unit: points per X number of population.

Data Source: National or local health service information systems.

Discussion: Similar to the previous SDP indicator above but with reference to client population. An example from the Safe Pregnancy Indicators Subcommittee: "Number of facilities providing essential

obstetric functions per 500,000 population." (Standards for essential obstetric functions at the health center level are identified as: provision of parenteral antibiotics, parenteral oxytocic drugs, parenteral sedatives for eclampsia, manual removal of placenta, manual removal of retained products. At the district hospital level, services should also include anesthesia, surgery, and blood transfusion.) *(Reproductive Health Indicators Working Group/Safe Pregnancy)*

e. Other Commodities

Missions may choose to report on the provision of other commodities with or without a reference to availability or access. Typical commodities reported are oral rehydration salts, and supplies of essential drugs (e.g. STI drugs).

Data Source: MOH data, local project reporting, etc.

B. Quality of Care

These service quality indicators, unlike access and availability indicators, measure actual performance of service providers and systems. Also included are indicators measuring providers' knowledge and capabilities.

i. Provider Performance Indicators

a. Integrated Management of Childhood Illnesses

Definition: The proportion of patients diagnosed by the health care provider who are prescribed treatment in accordance with the national policy (regarding diarrhea, malaria, and/or acute respiratory infections [ARIs]).

Unit: percent

Data Source: Observations and interviews in health facilities.

Discussion: In recent years, integrated case management for diarrhea, malaria, and ARI has become recognized as an effective child survival strategy. In addition to indicators of access, supply, and demand suggested above, outcome indicators for case management interventions should focus on indicators of provider performance.

b. Malaria Diagnosis and Treatment

Reflecting a heightened emphasis on strengthening control and treatment of malaria in particular, these two indicators, along with "early consultation for febrile

children" (see service use indicators) are now specifically recommended to the missions by the Africa Bureau.

1. Correct Microscopic Diagnosis of Malaria

Definition: Health facilities that perform microscopic diagnosis of malaria in which a correct diagnosis is made for more than 90 percent of the slides examined divided by all health facilities that perform microscopic diagnosis of malaria.

Unit: percent

Data Source: Observations and interviews in health facilities.

Discussion: This indicator is designed to produce information on the quality of microscopic diagnosis, an important component in the diagnosis of therapeutic failures and severe malaria. Supporting data can be obtained by well-trained technicians re-examining a sample of slides that have previously been examined by the staff of the health facility, and arriving at a criterion-based judgement about the overall quality of the resulting diagnosis. The principal limiting factor in the measurement of this indicator will be the availability of personnel qualified to perform the re-examination. Another possible weakness with this indicator, as stated here, is that it fails to capture the timeliness of diagnosis, an element which could be introduced at the mission's discretion.

2. Treatment of Malaria in Health Facilities

Definition: Cases of uncomplicated malaria diagnosed among target groups which are treated in accordance with national policy in health facilities divided by all cases of uncomplicated malaria diagnosed among target groups in health facilities.

Unit: percent

Data Source: Observations and interviews in health facilities.

Discussion: This indicator is designed to measure the quality of treatment for cases of uncomplicated malaria diagnosed in health facilities. Supporting data can be obtained by observing the performance of health workers. A critique of this indicator from the field is that it fails to assess diagnosis of uncomplicated malaria.

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c. Quality of Immunization Services

These indicators measure provider performance with respect to providing immunizations in accord with the national immunization policy. For countries which follow the WHO-recommended immunization policy, two indicators are recommended:

1. **Targeting Infants Under-One for Immunizations***:* the proportion of infants who are immunized with measles after the earliest recommended age of nine months of age who are also immunized before the recommended age of one year.

2. **Missed Opportunities for Measles Immunization:** the proportion of infants who attended a clinic and were eligible to be immunized against measles, but who were not immunized against measles at that visit.

Unit: percent

Data Source: These indicators are most frequently calculated from immunization coverage survey data or from clinic-based assessments conducted as a component of routine clinic supervision.

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d. Safe Pregnancy Indicators

The following two indicators are recommended by G/PHN's Safe Pregnancy Indicators Subcommittee (RHIWG/SP).

1. Met Need for Emergency Obstetric Care

Definition: The proportion of women estimated to have direct obstetric complications that are seen in emergency obstetric care facilities.

Unit: percent

Data Source: Project and facility reporting; population-based survey or census for estimating number of births.

Discussion: Measuring this indicator requires tallies of serious cases treated in facilities divided by an estimate of all serious obstetric complications among women. A community-based survey would be more costly but could provide a far more reliable estimate.

2. Women Admitted with Obstetrical Complications Treated within Two Hours

Definition: Percent of women admitted with hemorrhage, eclampsia, septic shock, or obstructed labor who are treated within two hours of arrival.

Unit: percent

Discussion: Without time-consuming facility-based observation, measuring this indicator relies on an estimate of total cases of hemorrhage.

Data Source: Project and facility reporting; estimated morbidity.

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e. STI Case Management

1. Appropriate Diagnosis and Treatment

Definition: The number of individuals presenting with an STI in health facilities assessed and treated in an appropriate way (according to national standards) divided by the total number of individuals presenting with an STI in health facilities.

2. Counseling and Partner Notification

Definition: The number of individuals seeking STI care in health facilities who received basic advice on condom and on partner notification divided by the number of individuals seeking STI care in health facilities.

Unit: percent

Data Source: Clinic tallies, project monitoring; population-based surveys.

ii. Systems Strengthening

These monitor performance of activities to strengthen training, supervision, health information systems, and logistics. They are similar to some service supply indicators but focus more on the degree of human resource and management development within the family planning and health sector. The following sample indicators are primarily quantitative; others may be formulated to focus on the quality of the system being assessed. Specific indicators are best designed at the local (mission) level.

a. Training:

- Proportion of health facilities with at least one currently practicing health worker who was trained or retrained in the previous three years.
- Number of trained HIV outreach workers
- Number of trained community health workers
- Number and/or attendance of workshops conducted, etc.
- Presence of standard treatment guidelines in facilities
- Providers' knowledge of referral facilities

b. Supervision:

- Proportion of facilities with personnel who report one or more visits by their supervisor in the past three months.

c. Health Information Systems:

- The proportion of reports (facility to district, district to national) received within the required period of time.

d. Logistics:

- Percentage of storage capacity available to the program that meets acceptable standards with respect to temperature, humidity, ventilation, etc. (*Handbook of Indicators for Family Planning Program Evaluation)*.

Discussion: This indicator provides an overall measure of the adequacy of program storage facilities for health and family planning commodities. Data requirements for this indicator include the total storage capacity and estimates of capacity that meets standards.

Data Source: Government, project reporting, clinic tallies. Data necessary to calculate many of these indicators are frequently collected during clinic and community assessments or as part of routine supervision of health facility staff.

- Percentage of service delivery points that encountered a stock-out of any item during the past 12 months (*Handbook of Indicators for Family Planning Program Evaluation)*.

Discussion: This indicator provides a measure of the extent to which SDPs have been unable to serve clients with the full range of health services during the past year due to inadequate supplies. For contraceptives, a stock-out is deemed to occur when a service delivery point has no supplies of a particular brand, even though there may be supplies of other brands for the same method.

Data Source: Government, project reporting, clinic tallies. Data necessary to calculate many of these indicators are frequently collected during clinic and community

assessments or as part of routine supervision of health facility staff.

C. Sustainability

These indicators monitor performance of activities to promote sector reform, especially regarding public policy and financing mechanisms.

i. Public Policymaking and Planning

a. Implementation of HIV/AIDS prevention plans (yes/no).
b. Implementation of a safe pregnancy strategic or operational plan (yes/no).
c. Regulation of family planning activities (examples from USAID/Zambia): Restrictions on advertising for family planning, regulation of prescription for family planning (yes/no).

Data Source: Government, project reporting.

ii. Public Resource Allocation

a. Government spending on health, family planning, etc. (absolute)
b. Percentage of government budget allocated to health, family planning, etc.
c. Percentage of health budget allocated to primary health care, rural extension, etc.
d. Percentage of recovered costs retained at local institutions.
e. Percentage of pharmaceuticals to non-hospital facilities.
f. Percentage of routine vaccination budget paid by government.

Data Source: Health ministry, government finance reporting. Actual expenditure information is preferable to budget data but is often not available in a usable format in a timely manner.

Discussion: It may be advisable to report both absolute (as in a.) and proportional data (as in b.) to provide a more complete picture of financing trends. Several missions (Ethiopia, Guinea, Kenya) are reporting health care financing levels as indicators for varying levels of the results framework. The relationship between mission activities and government spending trends is not a direct one and the value of these indicators for actual program performance monitoring is unclear. They can be very useful, however, to monitor whether a critical assumption of government commitment is being met. For example, UNICEF is monitoring the last indicator on the list, "Percentage of routine vaccination budget paid by government," to assess host country's commitment to self-financing of immunization programs.

iii. Cost Recovery

a. Number (or percentage) of specified facilities with cost recovery mechanisms in place.
b. Percentage of recurrent costs recovered through cost recovery.
c. Percentage of recovered costs available for primary health care.

Data Source: Facility or project reporting, management or logistics information systems.

iv. Contraceptive Social Marketing (CSM)

Definition: Number of contraceptives sold through social marketing.

Unit: units sold.

Data Source: Facility or project reporting; logistics information systems.

Discussion: Contraceptive sales figures are very useful to show impact for family planning activities. Condom sales figures in particular can point out the impact of HIV/STI prevention programs. Reflecting both supply of and demand for commodities, social marketing sales figures are a fitting indicator of the overall sustainability of these programs.

In the absence of higher level (service utilization) indicators for HIV/AIDS/STI prevention programs, condom sales may be an appropriate proxy indicator.

v. Mobilization of Private Sector

a. Number of NGOs active in health, family planning, etc.
b. Number of private practitioners; or private practitioners as a percentage of total practitioners.
c. Number or percentage of people covered through private health insurance, HMOs, etc.

Data Source: Project reporting, Health Ministry, private associations.

D. Demand

These indicators measure the level of demand for family planning and health services, focusing on the population's attitudes toward and knowledge of desirable outcomes (e.g., lower fertility), the need for family planning and health services, healthy practices, and the location of services.

The decision to assess demand independently of service use or other outcomes will undoubtedly vary across programs. Programmers in family planning, where knowledge of and attitudes toward family planning are key intermediate results toward increased contraceptive prevalence and reduced fertility, have tended to put more effort into monitoring levels of demand than have those in the health sector.

Measuring demand for good health would not provide much variation in response (assuming most people desire good health), but measuring people's demand for specific health services or commodities may be highly informative for program decision-making. Because desire for good health is typically more easily inferable than desire for family planning, demand indicators for health are primarily limited to those dealing with knowledge

i. Mean Desired Family Size

Definition: The average number of children that women (or couples) of reproductive age would choose to have if they could have exactly the number of children desired (*Handbook of Indicators for Family Planning Program Evaluation).*

Unit: children per woman (or couple)

Discussion: This indicator, which is comparable to the "desired total fertility rate," is subject to various biases related to respondents' inability or unwillingness to accurately specify their desired family size.
Data source: DHS and other population-based surveys.

ii. Unmet Need for Family Planning.

Definition: The proportion of women currently married or in union who are fecund and who desire either to terminate or postpone childbearing, but who are not currently using a contraceptive method *(Handbook of Indicators for Family Planning Program Evaluation)*.

Unit: percent

Discussion: This indicator reflects both use and demand for family planning. It is useful for understanding the current level of opportunity for family planning programs but is **not** useful in monitoring overall program performance over time because programs typically aim to increase both use and demand at the same time. While increased use of contraceptives will reduce unmet need, increased demand to limit fertility will act to increase unmet need.

Data source: DHS and other population-based surveys.

iii. Knowledge of Maternal Complications of Pregnancy and Childbirth

Definition: Percent of all adults who can identify four of seven warning signs of maternal complications of pregnancy and childbirth *(Reproductive Health Indicators Working Group/Safe Pregnancy)*.

Unit: percent

Discussion: This indicator is recommended by USAID's safe pregnancy indicators subcommittee to assess knowledge of the dangers of childbirth to mothers. The seven signs are antenatal vaginal bleeding, high fever, abdominal pain, swelling of hands and face, active labor for more than 12 hours, placenta retained for more than one hour, and seizures. The subcommittee also proposes a similar indicator on knowledge about neonatal complications.

Data source: Population-based surveys

iv. Knowledge of Key Child Health and Nutrition Practices

Definition: The proportion of caretakers who can state signs and symptoms (of diarrhea, malaria, and/or ARIs) requiring treatment and who can state rules for home case management. (For CDD programs, this is often expressed as the proportion of mothers of children under 5 years who can state the three rules of home case management.)

Unit: percent

Data source: DHS and other population-based surveys.

v. Knowledge of STI/HIV Preventive Practices

Definition: The number of people citing at least two acceptable ways of protection from HIV infection divided by the population of people aged 15-49 reporting.

Unit: percent

Data source: DHS, AIDSCAP, other

population-based surveys.

Discussion: The definition provided here focuses on HIV; missions may also wish to assess knowledge of protection against other STIs.

vi. Knowledge of Location of Services

Definition: The percentage of a specified target population who know where specified services (e.g. immunization, emergency obstetric care, etc.) can be obtained.

Unit: percent

Data source: DHS and other population-based surveys.

vii. Community Support

a. Number of health communities with health committees.
b. Number of community-based programs supporting primary health care.

VII. Key to Citations

This document is the product of consultation with technical staff of USAID, its Cooperating Agencies, and other multilateral agencies as well as a technical review of performance monitoring by USAID missions. The following specific sources are cited in the text:

Abbreviation	Citation
CSIWG	Child Survival Indicators Working Group, draft report, August 1996.
Evaluation Project	Handbook of Indicators for Family Planning Program Evaluation. Chapel Hill, NC: The EVALUATION Project, 1994.
G/PHN	USAID, Global Bureau, Center for Population, Health and Nutrition. Action Plan, June 21, 1995.
Report to Congress	USAID. Child Survival: Eighth Report to Congress on the USAID Program. December 1993.
RHIWG/SP	Koblinsky, Marge, ed., et al. Indicators for Reproductive Health Program Evaluation: Final Report of the Subcommittee on Safe Pregnancy. Chapel Hill, NC: The EVALUATION Project, December 1995.
RHIWG/STD/HIV	Indicators for Reproductive Health Program Evaluation: Final Report of the Subcommittee on STD/HIV. Chapel Hill, NC: The EVALUATION Project, December 1995.
Wellstart	Baker, Jean, et al., "Tool Kit for Monitoring and Evaluating Breastfeeding." Draft for Discussion. Wellstart International, July 1996.
WHO/CDD	World Health Organization, Program for Control of Diarrheal Diseases (WHO/CDD). Indicators For Assessing Breast-Feeding Practices, WHO/CDD/SER91.14.
WHO/EPI	World Health Organization, Expanded Program for Immunization (WHO/EPI). A Vision for the World: Global Elimination of Neonatal Tetanus by the Year 1995. Plan of Action, no date (1989?).
WHO/GPA	World Health Organization, Global Programme on AIDS. Presented in Mertens, Thierry, et al., Prevention indicators for evaluating the progress of national AIDS programmes, *AIDS* 8 (1994), 1359-69.

End Notes

1. Demand: The most basic definition of demand is the desire to possess or obtain something. There are two basic aspects of demand to consider in strategic planning and performance monitoring: (1) Prevalence, the proportion of a population that have a desire for something, and (2) Magnitude, the intensity of individuals' desires or how much people are willing to give to get that something.

Demand can be addressed hierarchically. For example, the family planning sector is concerned at the highest level of results with promoting the demand for smaller, healthier families, and at a lower level with stimulating demand for family planning services. The highest level of demand for the health sector would be for the general health of individuals and families and the next level down would be the demand for services and commodities provided through health and nutrition interventions.

Where does demand fit into family planning and health strategies and monitoring? Family planning and health strategies are concerned with both the *creation* and *satisfaction* of demand. However, problems in the creation of demand are generally more complex in the family planning sector than in the health sector because desire for smaller families is more variable than desire for better health. Consequently, family planning has tended to put more energy into monitoring different levels of demand than has the health sector. Family planning, for example, measures people's conception of ideal family size, desire to space births at least 24 months apart, and reasons for using or not using family planning. Each of these represents an attempt to measure demand at a different level. In the health sector, on the other hand, measuring demand for good health would not provide much variation in response (assuming most people desire good health) but measuring people's demand for specific services and commodities may be highly informative for program decision-making. While mothers would generally agree that it is desirable to prevent children's illnesses, their disposition to bring children to health services for complete immunization may vary considerably. Survey questions on attitudes toward health services are more likely to yield useful information about demand in the health sector than are questions about desired health status.

When demand is incorporated into a performance monitoring scheme as a distinct concept, it is best operationalized as an *attitudinal* variable. To directly measure demand, we collect data about what people want and don't want, how badly they want it, and what their reasons are for wanting or not wanting it. It is also important to note that demand should always be regarded as an intermediate variable; there are preceding causes for demand (or the lack thereof) and there are behavioral effects that follow demand.

Some analysts have argued that *knowledge* is an adequate proxy for demand, using the logic that if people know of the benefits of an intervention and know how to avail themselves of that intervention, they will logically demand it. While knowledge is clearly an important prerequisite of demand, it is insufficient grounds to infer demand: we often know what we *should* do, but choose to do something different for a variety of reasons. For example, mothers may know the proper

procedure for ORT as a treatment for diarrhea, but their desire to administer it may vary considerably, particularly when weighed against a host of other beliefs and priorities, and may or may not be strong enough to result in actual use of ORT.

Use of commodities and services has also been posited as a proxy for demand, but use only measures "effective demand," that portion of demand that is currently being met. Measurement of use does not tell us what proportion of total demand is not being met, nor anything else to suggest why part of the population are not utilizing the services or commodities.

This does not mean that measurements of knowledge and use are not relevant to demand. In fact, a comparison of the difference between levels of *knowledge* (a preceding cause to demand) and *use* (a behavioral effect of demand) can yield important information about the nature of demand in a given situation. For example, if knowledge of an intervention is at, say, 80% and use stands at 75%, we could infer that demand is high relative to knowledge and that the demand is essentially being met. On the other hand, if use is only 45%, the large difference between knowledge and use alerts us that something is wrong in the program: either knowledge is not sufficiently creating demand or demand is not being adequately met due to some other factor, such as poor access to or quality of services or commodities. We can, of course, measure access and quality, and if either or both of these are judged to be poor, we can speculate that they are the cause of low use.

Without asking the people directly, however, we cannot be certain how much of the knowledge-use gap is due to poor access and how much to poor quality, nor can we ascertain which aspects of access and quality are most to blame for the gap. We could determine that, say, 60% of the population live more than 1 hour traveling distance from a service delivery point, but we still don't know what percentage want the service badly enough to overcome the time/distance obstacle. We could measure certain aspects of quality that *we* think are important, but our priorities may not be the same as those of the target population. Without measuring attitudes, we also lack knowledge about cultural factors which may affect demand and in turn produce the discrepancy between knowledge and use.

Conclusion

Including the concept of *demand* into strategic plans and measuring attitudes related to demand for program outputs and outcomes can be very useful. The pivotal question is whether the value of information about demand is worth the cost of collecting it. This decision will undoubtedly vary across programs. Family planning has clearly found it important to monitor demand attitudes at various levels, as is evidenced by the content of many DHS questions. Programmers in the health sector may also need to consider the efficacy of including attitudinal questions that help to pinpoint the weak links in the intervention chains. If examination of the access-quality-knowledge-use data shows signs of weak linkages among program dimensions, then attitudinal surveys may be deemed the most efficacious way to identify the critical areas needing improvement.

2. CYP: Missions may wish to use couple years of protection (CYP) as one of their performance indicators for strategic objectives or intermediate results relating to family planning use. CYP are

estimates of family planning use based on program service data (commodities distributed or family planning services provided). Such estimates can often be calculated on an annual basis at a low cost and can provide useful trend information for the years between demographic surveys. Presumably, if contraceptive sales or distribution are increasing annually, family planning use is also increasing. However, this assumption needs to be checked through population based surveys and the calculation of contraceptive prevalence rates (CPR). There are a number of reasons why CYP data are less reliable than contraceptive prevalence rates. These relate to differences in the amounts of contraceptives distributed and those actually used by clients and in the timing of such use. Often contraceptives are distributed nationwide or through sales networks well in advance of their actual use by consumers. Contraceptive supplies may be damaged in transit or storage and destroyed. CYP can not substitute for CPR as an overall measure of program results and should not be converted to or reported as CPR. As with other performance measures, missions considering the use of CYP data should review the source, quality and completeness of the program data used to calculate CYP as well as the contraceptive logistics systems used to manage and monitor supplies. In general, CYP based on program data derived from family planning service delivery or contraceptive sales should be more accurate than that based on national imports or distribution of contraceptives. Missions should also ensure that the conversion factors used to calculate CYP are those recommended by G/PHN. For further information on these and other issues related to monitoring family planning programs, missions should refer to "A Guide to Methods of Family Planning Program Evaluation" available from G/PHN.